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REMARKS

Claims 1-6 are in the case. Claims 1-2 and 5-6 are rejected under 35 USC § 102 over USPN 5,952,694 to Miyawaki et al. Claim 3 is rejected under 35 USC § 103 over Miyawaki et al. in view of USPN 6,309,943 to Glenn et al. Claim 4 is rejected under 35 USC § 103 over Miyawaki et al. in view of USPN 4,423,127 to Fujimura. The rejections are respectfully traversed. Reconsideration and allowance of the claims are respectfully requested.

CLAIM REJECTIONS UNDER §102

Claims 1-2 and 5-6 are rejected under 35 USC § 102 over Miyawaki et al. Independent claim 1 claims, *inter alia*, an integrated circuit substrate with a first surface adapted for receiving a series of aligned layers during the creation of the integrated circuit, *the first surface having no layers formed thereon*, and a second surface *having no layers formed thereon* and at least one alignment mark formed thereon. Thus, the substrate as claimed has two sides, where one side is adapted to receive aligned layers, but doesn't have any layers formed on it. The other side has an alignment mark formed on it, and also doesn't have any other layers formed on it.

Miyawaki et al. do not describe such a substrate. Miyawaki et al. describe a p-type silicon substrate 1, *that is oxidized by 5,000 angstroms*. Reference alignment marks 93 are formed in a lower surface by a photolithographic process (*see column 18, lines 6-10*). Thus, the structure as depicted in Fig. 26A has a layer of oxide that is 5,000 angstroms thick, which layer is merely not depicted in the figure, but is clearly described in the detailed description. This is more than an incidental thickness of oxide, as a native layer of silicon oxide is only about fifty angstroms in thickness. Thus, the oxide layer as described by Miyawaki et al. has been intentionally formed, and is not just incidentally present. However, regardless of how the layer was formed, as described by Miyawaki et al., the structure does indeed have an oxide layer, presumably on both the top and bottom surfaces. As recited in claim 1, the substrate of the present invention does not have such an oxide layer – or any other layer – on either side.

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Further, applicants assert that the language in regard to the first surface being adapted for receiving a series of aligned layers during the creation of the integrated circuit is not merely intended use language. As well understood by those with skill in the art, the surface of a substrate must be specially prepared in order to be adapted for receiving a series of aligned layers during the creation of an integrated circuit.

For example, such surfaces must have a very exacting degree of planarization, smoothness, crystal orientation, and purity, just to name a few of the required properties. The backside of a semiconducting substrate, by example, is typically not smooth at all – by design – and has a relatively extreme degree of surface roughness as compared to the opposite side that is adapted to receive a series of aligned layers during the creation of the integrated circuit. The roughness of the backside of the substrate would cause disastrous results in an integrated circuit if it was used for the formation of the aligned layers. However, the roughness of the backside is important for several reasons, including the gettering of impurities in the substrate, which impurities are trapped in the crystal dislocations that are found in the rough backside surface.

Thus, the language of the claim in regard to the first surface being adapted for receiving a series of aligned layers during the creation of the integrated circuit is not merely intended use language, but rather provides additional and extensive limitations on the apparatus described in the claim.

For these and other reasons, claim 1 patentably defines over Miyawaki et al. Reconsideration and allowance of claim 1 are respectfully requested. Dependent claims 2 and 5-6 depend from independent claim 1, and contain additional important aspects of the invention. Therefore, dependent claims 2 and 5-6 patentably define over Miyawaki et al. Reconsideration and allowance of dependent claims 2 and 5-6 are respectfully requested.

CLAIM REJECTIONS UNDER §103

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyawaki et al. in view of Glenn et al. Dependent claim 3 depends from independent claim 1, and therefore claims, *inter alia*, an integrated circuit substrate with a first surface adapted for receiving a series of aligned layers during the creation of the integrated circuit, the first

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surface having no layers formed thereon, and a second surface having no layers formed thereon and at least one alignment mark formed thereon.

The deficiencies of Miyawaki et al. in regard to these limitations are described at length above. Glenn et al. do not compensate for the deficiencies of Miyawaki et al. Glenn et al. describe a substrate that already has all of the aligned layers formed on it before the alignment marks are formed. Thus, the substrate of Glenn et al. does not have two sides with no layers formed thereon, and an alignment mark on one of the sides. Thus, claim 3 patentably defines over Miyawaki et al. in view of Glenn et al. Reconsideration and allowance of claim 3 are respectfully requested.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyawaki et al. in view of Fujimura. Dependent claim 4 depends from independent claim 1, and therefore claims, inter alia, an integrated circuit substrate with a first surface adapted for receiving a series of aligned layers during the creation of the integrated circuit, the first surface having no layers formed thereon, and a second surface having no layers formed thereon and at least one alignment mark formed thereon.

The deficiencies of Miyawaki et al. in regard to these limitations are described at length above. Fujimura do not compensate for the deficiencies of Miyawaki et al., in that Fujimura does not describe printing an alignment mark on the back side of the substrate that has no layers on either side. Therefore, the combination of Miyawaki et al. and Fujimura does not described the substrate as claimed in claimed 4. Thus, claim 4 patentably defines over Miyawaki et al. in view of Fujimura. Reconsideration and allowance of claim 4 are respectfully requested.

CONCLUSION

Applicants assert that the claims of the present application patentably define over the prior art made of record and not relied upon for the same reasons as given above. Applicants respectfully submit that a full and complete response to the office action is provided herein, and that the application is now fully in condition for allowance. Action in accordance therewith is respectfully requested.

In the event this response is not timely filed, applicants hereby petition for the appropriate extension of time and request that the fee for the extension be charged to

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deposit account 12-2355. If other fees are required by this amendment, such as fees for additional claims, such fees may be charged to deposit account 12-2252. Should the examiner require further clarification of the invention, it is requested that s/he contact the undersigned before issuing the next office action.

Sincerely,

LUEDEKA, NEELY & GRAHAM, P.C.

By: 

Rick Barnes, 39,596

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